Energy News

Photo by Christophe Eyquem

Energy News Overview

Two months ago the global average temperature was reported by NASA and other climate reporting organizations indicating 2012 was the 10th warmest year on record (starting in 1880), The average was actually fairly typical for the for global annual temperatures reported over the past 15 years. Soon after, several articles appeared in the mainstream press (and hundreds of opinions in the blogosphere) noting the apparent pause in global warming: see links for the Economist article on page 6 and the UW's Cliff Mass blog on page 2. Several possible explanations can explain the pause in the upward trend in global temperature (all or some could be at work). The most widely discussed explanation is that the world is not quite as sensitive to increased levels of greenhouse gases. Decades long oceanic weather patterns may have exaggerated the rate of temperature increase from 1975-2000, and are now moderating the effect of increasing greenhouse gas levels. Increasing levels of sulfate particles from burning coal may be scattering incoming solar radiation thereby temporarily preventing global warming. Because climate science is very complicated, scientists are cautiously interpreting the recent temperature trend.

Another topic prominently displayed in the mainstream media is that of exporting coal mined in Montana and Wyoming to Asia via west coast ports: see links to articles on page 2. While coal consumption by the electric power sector has declined in the U.S. over past 5 years, it has risen rapidly in the developing world. Montana and Wyoming coal mining operations are looking for new markets and Asia is the obvious choice. Because coal is the lowest cost of the three primary fossil fuels (oil, natural gas and coal) there are ready markets for U.S. coal exports. Several coal export facilities have been proposed in British Columbia, Washington and Oregon. Environmental and citizen groups have broadly condemned these projects. Ultimately the debate over the proposed coal export terminals comes down to a jobs and money versus the environment and health. It promises to be one of the Northwest's biggest environmental debates in a couple of decades.

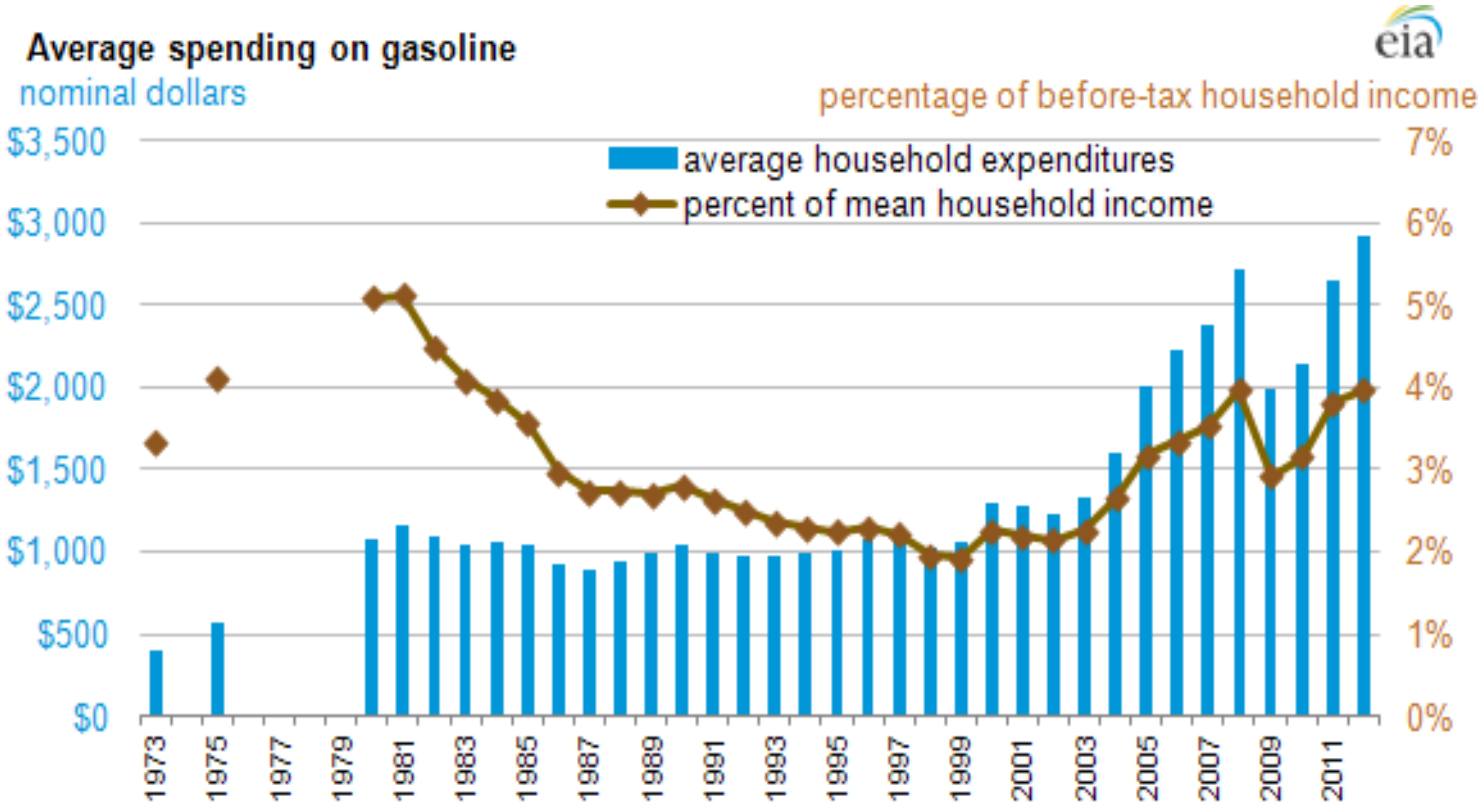
Energy Price Overview (charts on pages 3 &4)

During April prices for crude oil and refined products continued to decline with the real possibility that, barring refinery shutdowns, we may have already seen this year's peak prices for gasoline and diesel. Crude oil WTI spot price fell about $7 to $89/barrel, possibly in response to continuing bad economic news about the recession in Europe and slowing growth in China. National gasoline averaged $3.54/gal, down 14 cents for the month (CA $3.93), and diesel at $3.89, down 12 cents /gal (CA $4.08). The EIA chart on page 2 illustrates average household spending on gasoline by year in nominal dollars and as a percent of average household income. Spending peaked in 2008 and 2012 at around 4% of income, but this is below the 5% level observed during the early 1980's. With the growing US income equality of the last 30+ years one wonders if the percentages were based on median rather than average income if the trend would be significantly different.

NYMEX natural gas price (May delivery) has risen steadily the last two months, the result of sliding gas storage volumes and cold spring weather in much of the U.S.: currently at $4.12/MMBtu up 1.8 dollars from a year ago. Locally the spot price for gas at Kingsgate is up as well: now at 4.13/$MMBtu, up 2.4 dollars from a year ago. After several years of reduction in coal use in the US, higher gas prices are resulting in a rebound in the coal share of electric power generation.

A reported gas storage injection of 50 Bcf last week is typical for this time of year. The national natural gas storage figure is at 1734 Bcf and is now 5% below the 5-year storage average. Gas storage in the Western states is above the 5 year average.

Regional electricity spot price moved lower over the past month. The spring snowpack melt has begun and hydropower generation is abundant. The (four-week) Mid C trading hub (on-peak) price ranged from $27-40 per MWh, and the average electricity monthly spot market price was $30.4 per MWh, $7 lower than in the previous report. The Northwest river runoff forecast for the rest of the year is now at 88% of normal.



Gasoline expenditures in 2012 for the average U.S. household reached $2,912, or just under 4% of income before taxes, according to EIA estimates. This was the highest estimated percentage of household income spent on gasoline in nearly three decades, with the exception of 2008

Energy Headlines -If you only have time to read a few articles—read these.

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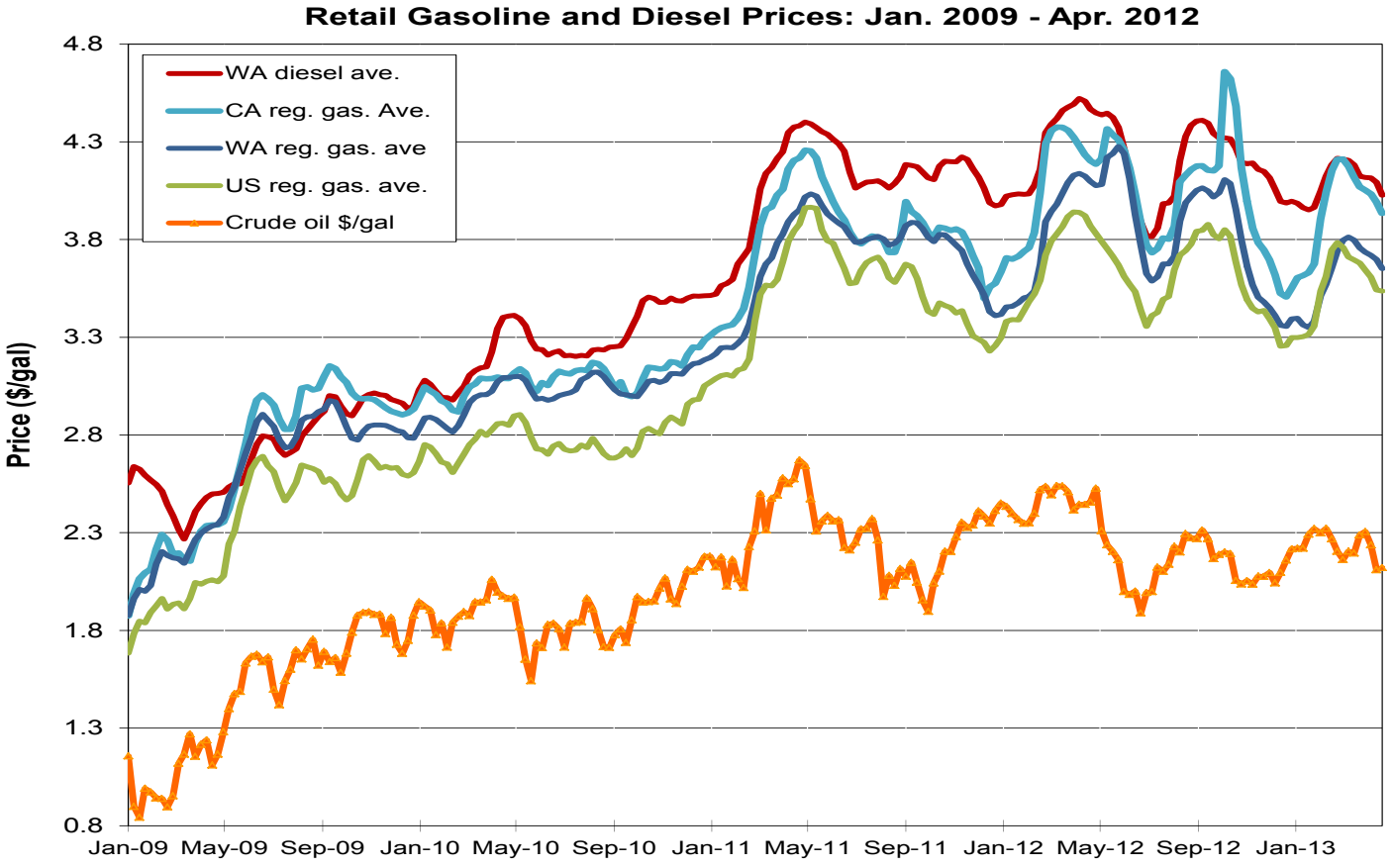
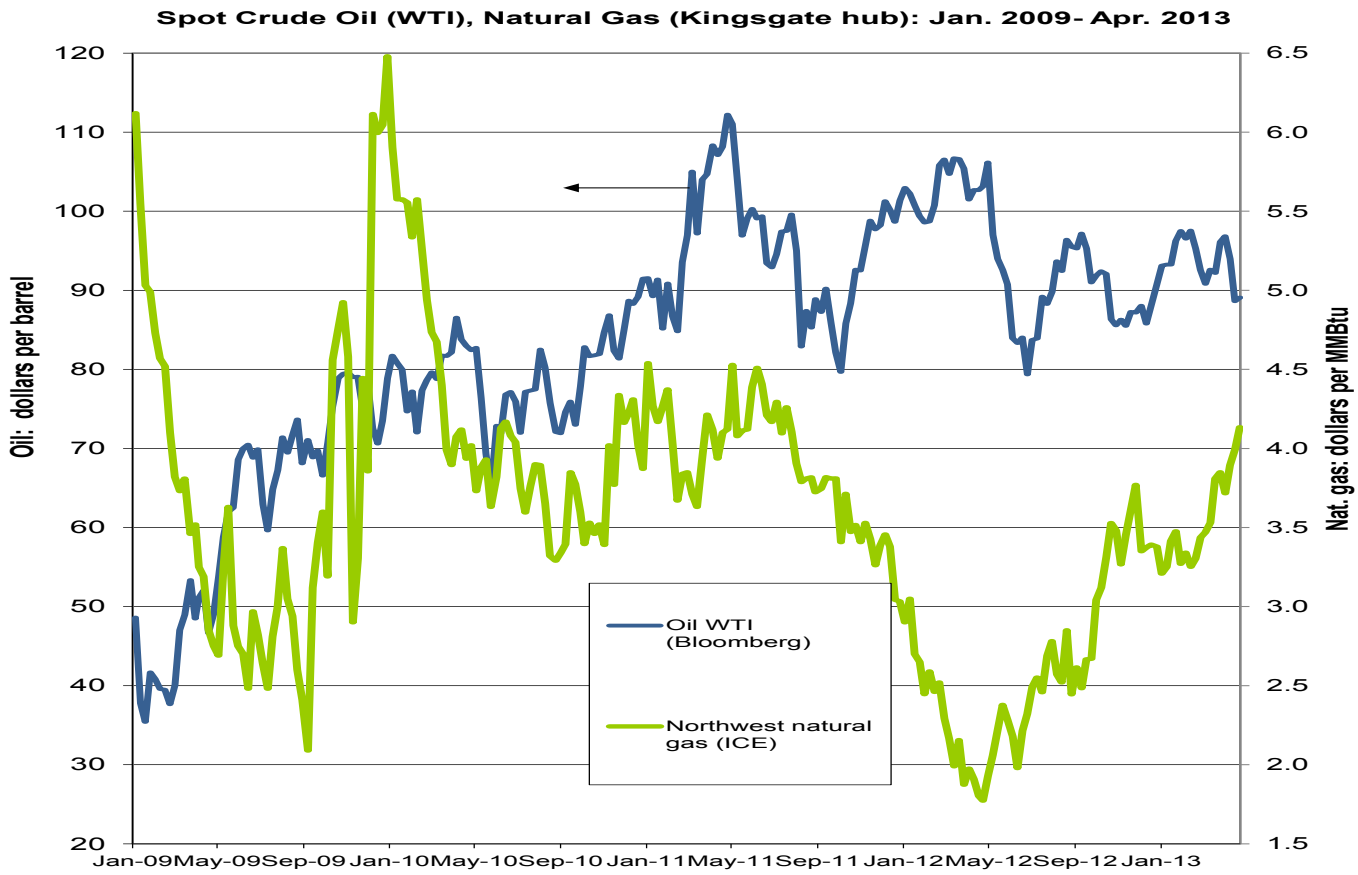
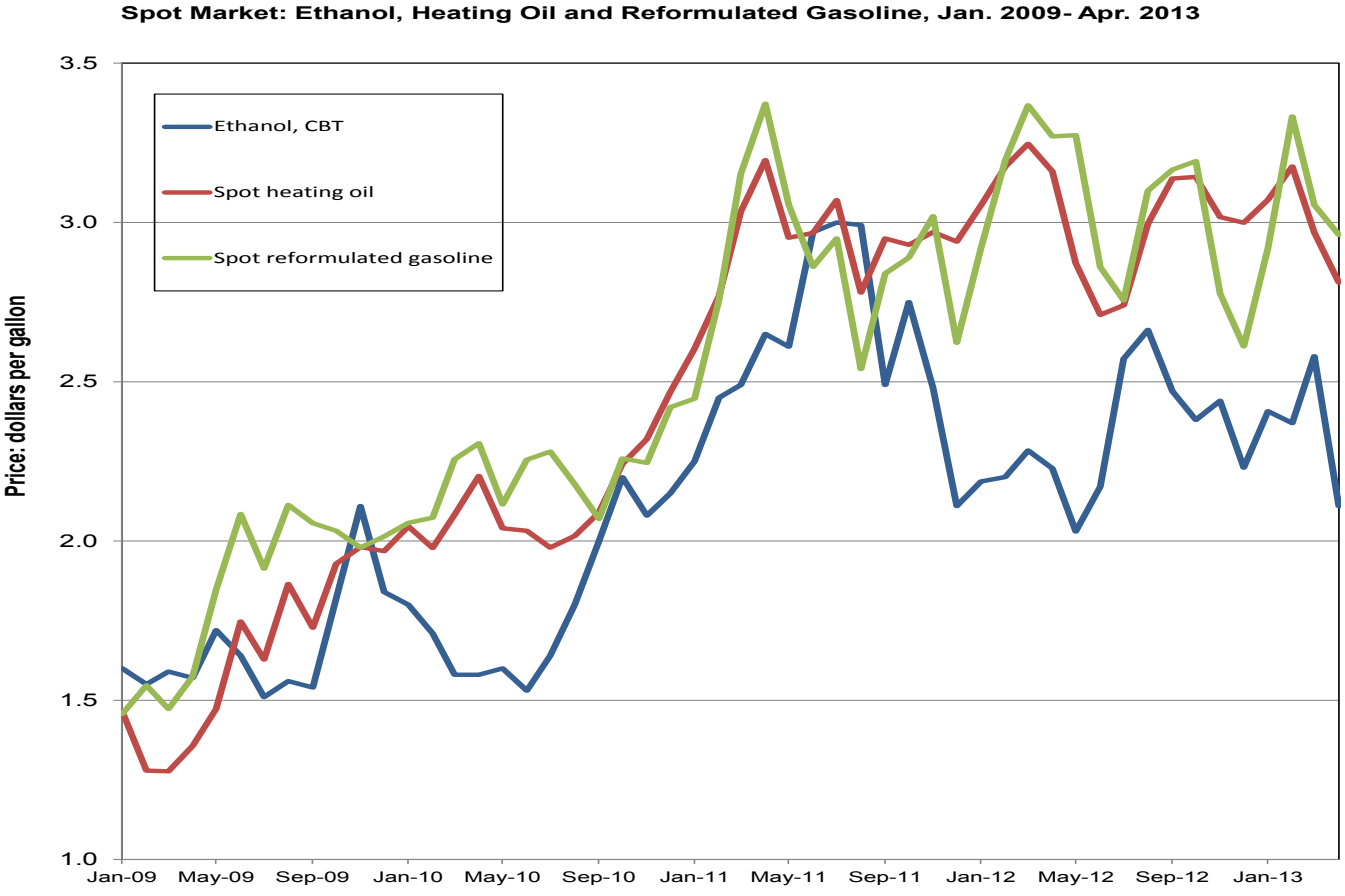
Electricity, Petroleum & Natural Gas Prices

Energy Price Summary	Current	Month Ago	Year Ago
Monthly Range at Mid-C (Peak: $ per MWh)	27-40	21-36	14-24
Average Mid C price (Peak hours $ MWh)	30.4	37.2	14.1
Electricity WA Retail: Feb. (cents/kWh)	7.20	7.15	7.10
Natural gas spot price (next day: $ per million BTU)	4.13	3.85	1.77
Natural gas futures (NYMEX next month: $ per million BTU)	4.12	4.07	2.29
E85 (national average: $ per gallon gasoline)	4.06	4.22	4.35
Ethanol (CBT next month contract: $ per gallon)	2.11	2.58	2.23
Corn ($ per bushel)	6.20	7.33	6.60
Petroleum, West Texas Intermediate: ($ per barrel)	89.1	96.1	103.2
Seattle gasoline price ($ per gallon)	3.68	3.83	4.13
Gasoline futures (NYMEX next month: $ per gallon)	2.87	3.12	3.18
State diesel price ($ per gallon)	4.03	4.12	4.47
Heating oil futures (NYMEX next month: $ per gallon)	2.79	2.92	3.18
U.S. residential propane price report (Oct.-Mar.)	NA	2.50	NA
Clean Cities: Alternative Fuel Price Report, Jan. 2012	**US Avg current**	**West Coast last qtr avg**	**West Coast current qtr**
Ethanol E85 ($ per gas gallon equiv.)	4.47	5.20	4.71
Biodiesel B20 ($ per diesel gallon equiv.)	4.13	4.50	4.27
Biodiesel B99-100 ($ per diesel gallon equiv.)	4.88	4.91	5.08
Compressed Natural Gas ($ per gas gallon equiv.)	2.10	2.41	2.39
Propane ($ per gas gallon equiv.)	3.70	3.91	4.04




Spot Crude Oil (WTI), Natural Gas (Kingsgate hub): Jan. 2009- Apr. 2013
Oil: dollars per barrel
Nat. gas: dollars per MMBtu
120
110
100
90
80
70
60
50
40
30
20
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
Jan-09 May-09 Sep-09 Jan-10 May-10 Sep-10 Jan-11 May-11 Sep-11 Jan-12 May-12 Sep-12 Jan-13
Oil WTI (Bloomberg)
Northwest natural gas (ICE)


Spot Market: Ethanol, Heating Oil and Reformulated Gasoline, Jan. 2009- Apr. 2013
Price: dollars per gallon
3.5
3.0
2.5
2.0
1.5
1.0
Jan-09 May-09 Sep-09 Jan-10 May-10 Sep-10 Jan-11 May-11 Sep-11 Jan-12 May-12 Sep-12 Jan-13
Ethanol, CBT
Spot heating oil
Spot reformulated gasoline

Energy Headlines—continued

Renewable Energy of Various Sorts

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The State Energy Efficiency and Conservation Block Grant (EECBG) Program—What did it buy us?

By Patti Miller-Crowley

The American Reinvestment & Recovery Act of 2009 (ARRA) provided funding for the Energy Efficiency & Conservation Block Grant Program, administered by US Department of Energy. Washington State received a block grant of $10.6 M, divided into two sub programs: $6.4M for Smaller Cities and Counties (SSC) competitive grants and $4.2 M for the Statewide Energy Planning Program (SEPP).

The SSC grant funded 43 projects with a total of 61 small cities and counties served. Projects included energy efficiency retrofits (32), commercial and residential building audits (8), transportation programs (8), traffic signal or street lighting upgrades (6), and a variety of other related activities. Estimated cumulative impacts of the SSC grants include $8.67 M in increased demand for Washington products and services between 2009 and 2012. With indirect and induced spending, the overall benefit to Washington's economy totaled $22.2 million. The projects directly resulted in 42,858 labor hours for Washington State residents. Including indirect and induced employment impacts, there were 142 annualized full-time-equivalent jobs created or retained. Energy savings varied by project. Retrofits usually resulted in immediate energy and operational cost savings while others projects such as energy strategy development influence policy and behavior changes needed for more long-term reductions.

The Statewide Energy Planning Program was focused on long-term changes. It funded a broad array of activities—much within the public policy realm. These included transportation plans for 8 cities; assisting state agencies to comply with energy tracking and reporting requirements; and developing a website and support for the Plug-in Electric Vehicle Task Force (tasked with identifying the state's readiness for and strategies needed to electrify our transportation system). Another key action was helping to fund the badly needed update to the *Washington State Energy Strategy*. This included working with an advisory committee, stakeholders, and the public to provide the first comprehensive look at the state's energy needs and future policies since 1993. Progress is already evident implementing several of the *Strategy's* recommendations, with more expected as we continue into the future.

River & Snow Pack Info

- Observed Mar. stream flow at The Dalles: 96% of average.
- Observed Mar. precipitation above The Dalles: 83% of average.
- Forecast runoff at The Dalles: Mar. 88% average flow
- Estimate of 2012-13 snow pack: Mar. 93% of normal.
- Federal hydropower generation in Mar.: 6,689 aMW, 2009-2013 average: 8,374 aMW.
- Reservoir content (Libby, Hungry Horse, Grand Coulee, Dworshak): Mar. 71%, 5-year average: 60%.

Power Exchanged

Average flow of power during the last 30 days
(Not available)

- California (exported to)
- Canada (import from)
- Net power exported:

Although every URL is checked for accuracy prior to publication, URLs are subject to change for various reasons.

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Become an Energy Geek

Amaze everyone around you with your knowledge of energy terms.

ACOP: Adjusted Coefficient of Performance. A standard rating term used to rate the efficiency of heat pumps in California.

Bituminous Coal: Soft coal containing large amounts of carbon. It has a luminous flame and produces a great deal of smoke.

Calorie: (energy calorie - small "c" - as opposed to food Calorie - capital "C") Any of several approximately equal values of heat, each measured as the quantity of heat require to raise the temperature of 1 gram of water by 1 degree Celsius from a standard initial temperature, esp. from 3.98 degrees Celsius. 14.5 degrees Celsius, or 19.5 degrees Celsius, at 1 atmosphere pressure. A calorie is the unit of heat equal to 4.184 joules.

DSM or Demand-Side Management: these programs consist of the planning, implementing, and monitoring activities of electric utilities that are designed to encourage consumers to change their level and pattern of electricity usage.

EER: Energy Efficiency Ratio—the ratio of cooling capacity of an air conditioning unit in Btus per hour to the total electrical input in watts under specified test conditions.

Feed-in Tariff: A renewable energy policy that typically offers a guarantee of payments to project owners for the total amount of renewable electricity they produce; access to the grid; and stable, long-term contracts.

Geothermal Gradient: The change in the earth's temperature with depth. As one goes deeper, the earth becomes hotter.

Heat Rate: A number that tells how efficient a fuel-burning power plant is. The heat rate equals the Btu content of the fuel input divided by the kilowatt-hours of power output.

ILEV: Inherently Low Emission Vehicle—Term used by federal government for any vehicle certified to meet the California Air Resources Board's Low Emission Vehicle (LEV) standards for non-methane organic gases and carbon monoxide, ULEV standards for nitrogen oxides, and does not emit any evaporative emissions.

Lignite: Brownish black coal having qualities in between those of bituminous coal and peat. The texture of the original wood often is visible in lignite.

MTBE: Methyl Tertiary-Butyl Ether—a clean burning oxygenate with high octane and low volatility added to unleaded gasoline to reduce carbon monoxide emissions.

NOx: Oxides of nitrogen that are a chief component of air pollution that can be produced by the burning of fossil fuels. Also called nitrogen oxides.

Perm: the measurement of water vapor through different materials measured in perm-inch (mass of water vapor moving through a unit area in unit time.)

Reserve: the extra generating capability that an electric utility needs, above and beyond the highest demand level it is required to supply to meet its users needs.

SEER: Seasonal Energy Efficiency Ratio—The total cooling output of a central air conditioning unit in Btus during its normal usage period for cooling divided by the total electrical energy input in watt-hours during the same period, as determined using specified federal test procedures.